

CLAIMS

What is claimed is:

1. A scroll machine comprising:
  - a shell defining a discharge chamber;
  - a first scroll member having a first spiral wrap projecting outwardly from a first end cap;
  - a second scroll member having a second spiral wrap projecting outwardly from a second end cap, said second spiral wrap being intermeshed with said first spiral wrap;
  - a drive member for causing said scroll members to orbit relative to one another whereby said spiral wraps will create pockets of progressively changing volume between a suction pressure zone and a discharge pressure zone, said discharge pressure zone being in communication with said discharge chamber; and
- a discharge valve disposed between said discharge pressure zone and said discharge chamber, said discharge valve being disposed within a recess formed by said first scroll member, said discharge valve being movable between a first, a second and a third position, wherein:
  - said first position is a closed position where fluid flow between said discharge chamber and said discharge pressure zone is prohibited;
  - said second position is an open position where fluid flow between said discharge chamber and said discharge pressure zone is permitted

at a first flow level; and

    said third position is an open position where fluid flow between said discharge chamber and said discharge pressure zone is permitted at a second flow level greater than said first flow level.

2. The scroll machine according to Claim 1, wherein said discharge valve moves axially with respect to said first scroll member.

3. The scroll machine according to Claim 1, wherein fluid flows around an outer periphery of said discharge valve when said discharge valve is in said third position.

4. The scroll machine according to Claim 1, wherein a passage between said first scroll member and said discharge valve is opened when discharge valve moves from said second position to said third position.

5. The scroll machine according to Claim 1, wherein said discharge valve comprises a valve plate and a valve stop.

6. The scroll machine according to Claim 5, wherein said valve plate moves with respect to said valve stop when said discharge valve moves from said first position to said third position.

7. The scroll machine according to Claim 5, wherein said valve plate moves with respect to said first scroll member when said discharge valve moves from said second position to said third position.

8. The scroll machine according to Claim 1, wherein said discharge valve comprises a valve seat and a valve plate.

9. The scroll machine according to Claim 8, wherein said valve plate moves with respect to said valve seat when said discharge valve moves from said first position to said second position.

10. The scroll machine according to Claim 8, wherein said valve plate moves with respect to said first scroll member when said discharge valve moves from said second position to said third position.

11. The scroll machine according to Claim 1, wherein said discharge valve comprises a valve seat, a valve plate and a valve stop.